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Ms. Glenna Clark, Code 622.3

EFA-West

Naval Facilities Engineering Command

900 Commodore Drive

San Bruno, CA 94066-5066

RE: "Draft Final Work Plan for Additional Data for Petroleum Hydrocarbon Corrective Action Plans, Hunters Point Shipyard, San Francisco, California," dated March 10, 1999.

Dear Ms. Clark:

I have reviewed the Draft Final Work Plan for Additional Data for Petroleum Hydrocarbon Corrective Action Plans and offer the following comments:

In the response to agency comments (Appendix E of the Draft Final Work Plan), the Navy states that the purpose of this document is to demonstrate if and at what rate natural attenuation or intrinsic bioremediation processes occur at HPS. Unfortunately, the authors of the work plan do a poor job of explaining how their proposed data collection activities will demonstrate whether and at what rate natural attenuation and intrinsic bioremediation processes are occurring at HPS.

I offer the following suggestions to improve the work plan:

1. **Section 1.1 (Purpose and Scope)** should be rewritten. I suggest that the following be substituted for the second sentence in this section:

"Before these parcel-specific CAPs can be developed, however, the Navy must determine whether and at what rate natural attenuation or intrinsic bioremediation processes are taking place at HPS. These determinations require that the Navy collect additional data. This workplan explains what additional data are necessary and how they will be collected."

2. **Section 3.0 Project Objectives and Technical Approach:** I found this section to be incongruent -- a mish-mash of what without a clear sense of why. It seems that four tests will be conducted, each requiring different site characteristics, each with an individual set of requirements. To clarify the test objectives and requirements I suggest that the Navy include the following table in Section 3.0:

Test	Objective	Ideal Site Characteristics	Analyses to be Performed
TPH leaching potential	Determine the potential for TPH to leach from soil into groundwater.	<ul style="list-style-type: none"> • TPH soil concentrations twice TPH screening criteria; • Underlying TPH-affected groundwater; • No CERCLA contaminants; • Uninfluenced by tidal action; • Uninfluenced by groundwater sink; • Accessible • 	<ul style="list-style-type: none"> • TPH extractables on soil and leachate • TPH purgeables on soil and leachate • Total organic carbon on soil • pH of soil • Physical parameters of soil
Intrinsic Bioremediation	Measure parameters indicate that intrinsic biodegradation may be taking place.	<ul style="list-style-type: none"> • TPH concentrations in A-aquifer groundwater "relatively high" • No CERCLA contaminants • Monitoring well located inland of tidally-influenced areas. • Groundwater flows to Bay rather than to groundwater sink 	<p>ON GROUNDWATER:</p> <ul style="list-style-type: none"> • TPH-extractables • TPH-purgeables • Total organic carbon • Dissolved gases • Inorganic Carbon • Major anions • Iron II • Manganese II • Total dissolved solids • Alkalinity • pH • Conductivity • Oxidation-reduction potential • Temperature

Attenuation -- Groundwater Sink	Determine whether inadvertent removal of TPH is taking place via groundwater sink	<ul style="list-style-type: none"> • TPH concentrations in A-aquifer groundwater "relatively high" • No CERCLA contaminants • x years of groundwater monitoring results available • Outside of tidally-influenced zone • Groundwater appears to flow into groundwater sink. 	ON GROUNDWATER: <ul style="list-style-type: none"> • TPH-extractables • TPH-purgeables • Total organic carbon • Dissolved gases • Inorganic Carbon • Major anions • Iron II • Manganese II • Total dissolved solids • Alkalinity • pH • Conductivity • Oxidation-reduction potential • Temperature
Attenuation -- Tidal flux	Determine whether tidal flux and intrinsic biodegradation is removing TPH	<ul style="list-style-type: none"> • TPH concentrations in A-aquifer groundwater "relatively high" • No CERCLA contaminants • x years of groundwater monitoring results available • Inside tidally-influenced zone • Samples from nearby, preferably inland, wells available for comparison. 	ON GROUNDWATER: <ul style="list-style-type: none"> • TPH-extractables • TPH-purgeables • Total organic carbon • Dissolved gases • Inorganic Carbon • Major anions • Iron II • Manganese II • Total dissolved solids • Alkalinity • pH • Conductivity • Oxidation-reduction potential • Temperature

3. A figure should be added to **Section 3.0** that illustrates each step in the workplan and decision points. It seems that four steps are necessary:

1. Identify areas where soil or groundwater are affected by TPH.
2. Sort and screen identified sites according to tests to be performed.
3. Perform appropriate analyses.
4. Draw conclusions.

4. **Page 11, first paragraph:** Natural attenuation must not be considered for floating product. Spreading floating product is not natural attenuation.

5. **Section 3.1 Soil Leaching and Natural Attenuation:** How will the 20 samples be aggregated to calculate a single soil leaching factor? What relationship will the leaching factor have to TPH concentration? How will this relationship be captured in the soil leaching factor? How will the results of the "soil natural attenuation study" be used? Will factors be developed for application at other sites?

6. **Section 3.2 Shoreline Attenuation Study:** How will the data from this study be evaluated? What hypothesis is being tested?

7. **Section 3.3 Inland Attenuation Study:** Sampling parameters for this study to not appear on Table 1, nor are they described in sufficient detail in Section 4.3 Groundwater Sampling and Analysis.

8. **Section 3.4 Confirmation of Groundwater Sink and Effect on TPH-Affected Groundwater:** How will tidal effects on TPH-affected groundwater be demonstrated?

9. **Section 6.2 Shoreline Attenuation Study:** I do not consider groundwater mixing and dilution caused by tidal fluxes along the shoreline to be remediation of TPH-affected areas.

10. **Section 6.3 Inland Attenuation Study:** How will risk to aquatic ecological receptors be determined?

Thank you for this opportunity to comment. If you have any questions about these comments, please call me at 415-495-1786.

Sincerely,

A handwritten signature in cursive script, reading "Christine Shirley". The signature is written in black ink and is positioned above the printed name.

Christine Shirley